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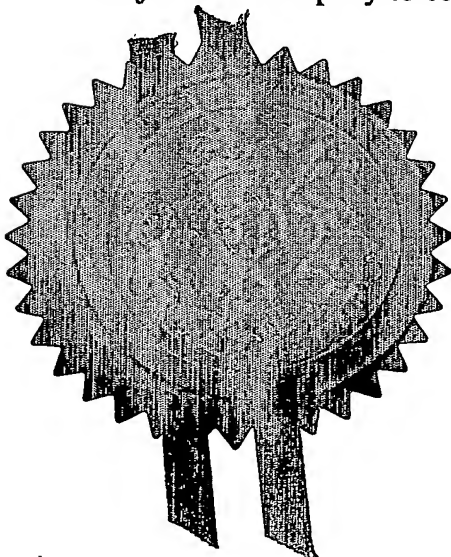
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Signed

Stephen Hordley

Dated 13 March 2003

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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

1. Your reference

PA / 02.

2. Patent application number

(The Patent Office will fill in this part)

0201197.1

19 JAN 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

ARNEG LIMITED
CALLYWHITE LANE
DRONFIELD
DERBYSHIRE
S18 2XJ

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

6214209002

4. Title of the invention

TILE CUTTING ATTACHMENT

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Patents ADP number (if you know it)

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

YES

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Enter the number of sheets of any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description

3 ✓

Claim(s)

Abstract

Drawing(s)

2 only ✓

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

1 ✓

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature



Date 17/01/01

12. Name and daytime telephone number of person to contact in the United Kingdom

D. ROBERTSON

01246 411 031

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Notes

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Title of the Invention

Tile Cutting Attachment

Field of the Invention

This invention relates to an attachment for a drilling machine, for use in the making of holes in hard composite tiles.

Background of the Invention

Many types of rotary glass & tile drills have been suggested in the past and have been in use for many years and find extensive use on building sites and other locations where there has been a necessity to drill tiles of a soft composition. None of which however have been entirely satisfactory for cutting holes in tiles of a hard composition.

While a diamond core drill will, of course, cut through tiles of a hard composition, experience has shown that a water spray must be employed to cool the drill while in operation or the diamonds will be lost. Not only does this necessitate the need for expensive drilling rigs in order to supply the cooling water, but the tiles become saturated with water which tends to make them incompatible with adhesives used to hold the tiles in place.

Object of the Invention

A basic object of the present invention is the provision of a tile drilling attachment that will produce holes in tiles of a hard composition. The invention is also designed to minimise the

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chipping of the hard material and particularly the glazed surfaces of the ceramic tile when a hole is being cut without the necessity of a cooling water supply.

Summary of the Invention

According to the present invention, there is provided a tile cutting attachment for the cutting holes in tiles of a hard composition comprising.

- i. A tile drill bit having an active diameter of d .
- ii. Comprising a shaft (a) and a tip (b) for engaging the workpiece.
- iii. The tip is provided with a plurality of edges.
- iv. Each edge is provided with a clearance angle (c), approx. $10^{\circ} - 20^{\circ}$, sufficient to provide a cutting edge to cut the workpiece as the drill bit rotates.
- v. The tip should be provided with a point angle (p) of approx. 90° .
- vi. The tip point should be given a relief angle (r) of approx. 60° .
- vii. The point angle (p) & relief angle (r) should form a central point on the head of the tip.
- viii. Secondary cutting edges should be provided with an overall angle (s) of approx. 30° .
- ix. By virtue of the drill bit tip configuration a tile cutting attachment with improved performance is provided.

Advantages of the invention:

The invention provides an attachment that can produce holes in hard composite tiles, without chipping the material surface and without the need for water-cooling.

Preferred or optional features of the Invention:

The cutting tip has a protective, heat resistance coating produced from - TiN

The cutting tip has a protective, heat resistance coating produced from - TiAlCrN

The cutting tip has a protective, heat resistance coating produced from - TiCN

The cutting tip has a protective, heat resistance coating produced from - TiAlN/VN

The cutting tip has a protective, heat resistance coating produced from - Diamond

The cutting tip is manufactured from tungsten carbide

The cutting tip is manufactured from cermet

The cutting tip is manufactured from ceramic.

The tip should be attached to the shaft by means of brazing.

The tip should be attached to the shaft by means of welding.

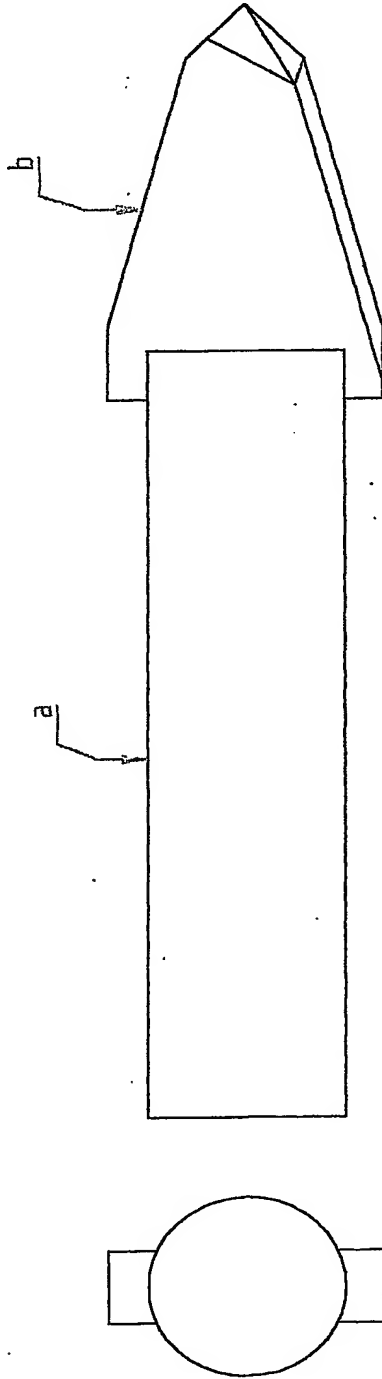
The tip should be provided with 6 cutting edges.

The shaft should be manufactured from Carbon Steel.

The shaft should be manufactured from Alloy Steel.

- One example of a Tile cutting attachment in accordance with the invention is shown in the accompanying drawing.

IF IN DOUBT ASK PROJECTION



ISSUE DATE 9/01/02 FIRST ISSUE 6 ALTERATION

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DRAWN BY: [illegible]
CHECKED BY: [illegible]
APPROVED BY: [illegible]

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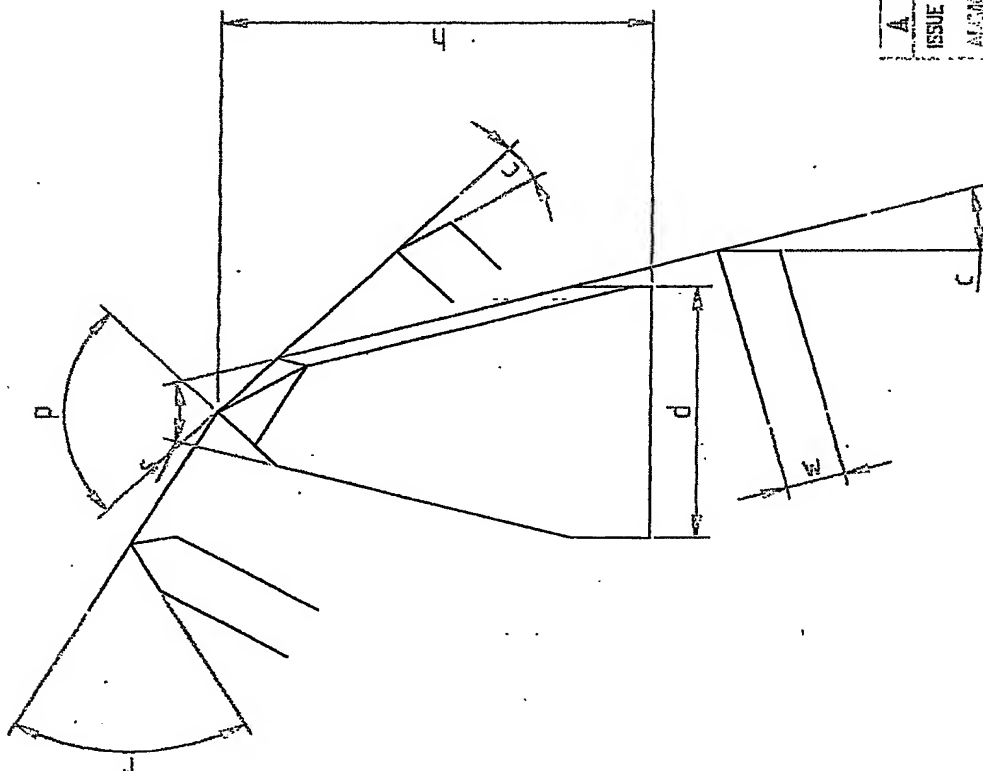
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